

Parrott shows way out of waste disposal maze

Legislative amendments that would place all issues relevant to the establishment of municipal and private waste disposal sites under the Environmental Assessment Act and in one single hearing before one board have been proposed by Environment Minister Harry C. Parrott to the Provincial-Municipal Liaison Committee.

The new procedure would streamline the current complex approval process, remove overlaps and duplications and help all parties involved to "find their way out of the maze surrounding waste disposal sites," Dr. Parrott said.

If the proposal is endorsed by the Committee, suitable legisla-

tion will be drafted during the summer and introduced as a priority item in the fall session of the Legislature.

At present, hearings for applications for the approval of waste disposal sites may be held under The Environmental Protection Act, The Planning Act, The Ontario Municipal Board Act, The Expropriations Act, and, under certain conditions, under The Niagara Escarpment Act or The Parkway Belt Planning and Development Act.

"Individual waste disposal projects have been subject to more than one hearing, and the decisions resulting from the different hearings have not always been consistent," Dr. Parrott said.

"This has led to considerable cost, delays and frustration for people participating in the process."

The implementation of The Environmental Assessment Act gave Environment Ontario the stimulus for the search for a more efficient solution. "A committee of senior technical and legal staff from the Ministries of the Attorney General, Housing, and Intergovernmental Affairs and my own Ministry has been working for almost a year on a solution," Dr. Parrott said.

"The basis of the solution," Dr. Parrott said, "is that all of the issues relevant to the establishment of a waste disposal site and

all of the parties who have rights and obligations under present legislation should be put together in one comprehensive hearing before one board with one appeal procedure."

"Regulations will be passed designating municipal and private waste disposal sites as subject to The Environmental Assessment Act. Provincial sites are

already subject to the Act"

Transition provisions will be provided to deal with projects already under way. "A proponent who has already commenced application procedures would be given the option of continuing under the existing procedures or carrying on with the application under the new streamlined hearing process," Dr. Parrott said.

Public asked to help find unused landfills

Environment Minister Harry C. Parrott has issued an open invitation to any Ontario residents who might have useful information on abandoned or unrecorded waste sites to call the Ministry's waste management branch or the nearest regional office.

The call for assistance is part of the province-wide survey to uncover any abandoned dumps or landfills which may have been unrecorded since 1971.

"We have 10 graduate students from York University surveying southern Ontario for any waste problems which could return to haunt us from the days when landfill was uncontrolled," Dr. Parrott said. "And Lakehead and Laurentian in northern Ontario are setting up the same search program." Total cost for the surveys is \$88,900.

"While site investigations, archives and municipal and public health files are the main sources for this information, we are seeking out older residents

with long memories who can offer assistance," Dr. Parrott said.

He described the survey as a supplement to the Ministry's current records of old waste sites so that potentially hazardous situations can be identified and development on any waste sites can be effectively discouraged.

The graduate students will be working closely with Ministry regional staff investigating both public and private property.

The defined objectives of the survey are:

1. To identify and record the location, size, volume, dates of use, type of waste, etc., available on waste disposal sites, domestic, commercial, industrial, solid and liquid, public and private, prior to 1971 when present certification system and records were established and any additional sites where wastes may have been disposed of without the knowledge of the Ministry.

2. To ascertain the existence of "rumoured" waste disposal sites, where no municipal or private records exist. This information will enable the Ministry to control development or activity on sites not previously documented.

\$137 million for sewage treatment

Over \$137 million will be spent in Ontario by the federal government in the next two years for projects related to neighborhood preservation and water and sewage facilities, Environment Minister Harry C. Parrott announced recently. The money is made available on the basis of a federal-provincial agreement establishing the Community Services Contribution Program.

Under the new agreement, the federal government will provide \$51.6 million this year. The total provincial commitment this year will be \$90 million, of which \$83 million will be spent for environmental projects. Of these \$83 million, \$49 million will be available in grants and \$34 million in loans. The federal contribution for environmental projects will amount to \$31 million this year.

The federal funds will be processed by the Ministry of the Environment under the municipal infrastructure part of the program for water and sewage projects in an estimated 115 municipalities.

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LEGACY

Summer 1979

Garbage fuels cement kiln

Environment Ontario and Canada Cement Lafarge Ltd. started a project in which refuse derived fuel (RDF) is used in the company's Woodstock cement kilns.

The fuel is produced at the Ontario Centre for Resource Recovery in Downsview from municipal and commercial waste and is trucked in 360 kg (800 lbs.) bales to the Woodstock plant.

At the plant the material is shredded and pneumatically conveyed into the kiln.

Initially about 40 tons per day of RDF will be used to replace 10 per cent of the normal fossil fuel. This share may be increased to 50 per cent for a total consumption of 60,000 tons of RDF per year. This amount would save about 22,000 tons of coal annually. Over 500 tons of garbage must be processed daily at the Resource Recovery plant to meet the requirements of just one of Canada Cement Lafarge's two cement kilns.

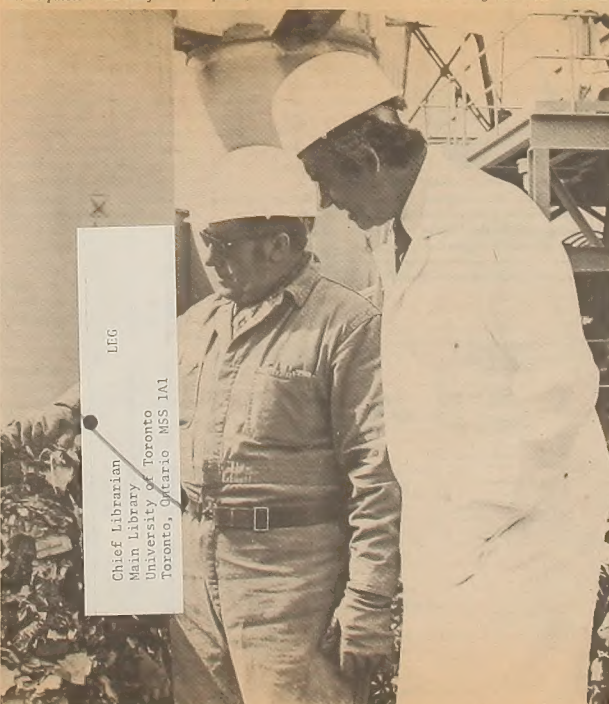
Emissions of airborne particulate associated with cement pro-

duction are controlled by two electrostatic precipitators. As part of the project, Environment Ontario will conduct extensive monitoring of emissions to determine whether the use of RDF has an effect on emission quality. In addition, the company will monitor both cement and clinker throughout the various phases of the study.

Each 360 kg (800 lbs.) bale of RDF contains:

- 220 kg (480 lbs.) of paper,
- 36 kg (80 lbs.) of organics including plastic, wood, cloth,
- 130 kg (280 lbs.) mixed combustible and inert fine material.

The RDF has a heat value of 11600 Joules /gr (5000 Btu per pound).



Environment Ontario Minister Harry C. Parrott and Canada Cement Lafarge yard foreman Bill Fordham inspect a bale of refuse derived fuel before it is delivered to the furnace.

LEG
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Parrott on acidic precipitation:

Fallout from our lifestyle

Acidic precipitation is another consequence of our industrial society, Environment Minister Harry C. Parrott told the Standing Committee on Resource Development of the Ontario Legislature recently. "The effects of acidic pre-

cipitation are almost as damaging to parts of the US, particularly northeastern New York State, as they are to the most seriously affected areas here."

But if the situation should continue unchecked, the impact will

be more severe on Ontario than on any part of the US.

At present, Dr. Parrott said, some 140 lakes are in trouble in Ontario and increasingly unable to support a sports fish population. "A further 48,000 lakes will go the same way over the next two decades unless something is done on an international scale."

The acidification of our lakes is caused by about 15 million tons of sulphur dioxide exhausted yearly into the air in the northeastern US and two million tons of

sulphur dioxide from Ontario sources. A further 24 million tons of nitrogen oxides stem from US sources and 660,000 tons from Ontario.

Aside from the destruction of fish life there is now strong reason to suspect that the shift in the acid balance in our lakes increases the load of mercury and other heavy metals which can be taken up by fish.

The impact of acidification on our tourism and recreation industries and the thousands of people dependent on these industries is

difficult to assess, although guesses range as high as half a billion dollars.

Nevertheless, "if we eliminated every Ontario source of sulphur and nitrogen oxides, it would have virtually no impact on the continuing damage to our lakes," Dr. Parrott said. As US power production is turning away from nuclear power plants because of public opposition, a great use of fossil fuels with an increased potential production of sulphur and nitrogen oxides may be expected.



Ron Reid of Environment Ontario's water resources branch, takes samples at the outflow from a Haliburton area lake. The sampling is done for the Lakeshore Capacity Study conducted by Environment Ontario together with the Ministry of Housing, and for the ongoing study on the effects of acidic precipitation. (Photo: Tessa Buchan)

Threefold action plan under way

Environment Ontario has therefore decided on a major action plan in three major thrusts, Dr. Parrott said. These are:

- abatement on an international scale
- preventive and remedial action,
- and continuing scientific investigation.

In the interim, some neutralisation programs will be required to protect lakes which are threatened immediately. At the same time the issue must be dealt with at its source.

Dr. Parrott said he had approached federal Environment Minister Len Marchand, and had reached an agreement on the need for joint federal-provincial research within Canada. The minister also agreed on the need for a complementary effort on the US side of the border to develop a solid base for action by provincial, state and federal authorities.

These initiatives will be continued with the goal to reach — an international accord in air quality and — an international air pollution abatement program.

Looking somewhat further into the future, however, we all will

have to pay the price for the damage done to our environment, and part of that price is an ultimate change in our life style.

"It is increasingly apparent that the production of the material goods which are inherent in our way of life is having an effect on our quality of life," Dr. Parrott said. "When our fuels pose a threat to our air and water, then we must either reduce our consump-

tion of those fuels or control the threat they present."

The technology to control the threat is increasingly expensive and as a result our material goods are increasingly expensive. Eventually, if we do not voluntarily change our life style and reduce consumption, rising costs will force material and energy conservation and a changed life style upon us.

What is being done:

On the initiative of the Ministry of the Environment, steering and technical committees have been formed and a coordinator has been appointed. Members include both M.O.E. and M.N.R. employees. The Federal Government will also be represented in the technical committees. These committees have agreed to terms of reference. The general objective of the study is:

- To develop a strategy to protect the Ontario environment based on the study findings.

- To prepare a state-of-the-art report on the acidic deposition phenomena with emphasis on cataloguing the experiences gained in Europe and North America.

- To establish contact and ensure continued close co-ordination with federal and international agencies concerned with this issue.

- To determine the atmospheric transport and deposition of acids and acid forming materials, metals and other relevant constituents for Ontario.

- To determine the effects of atmospheric deposition on aquatic ecosystems including: water quality, phytoplankton, zooplankton and fish.

- To determine the effects of atmospheric deposition on terrestrial ecosystems.

- To develop effective air pollution abatement alternatives.

- To design effective programs to preserve and rehabilitate affected aquatic and terrestrial ecosystems.

A major effort will be made to align and employ all appropriate Environment Ontario programs and expertise and to tie in related programs in the Ministries of Housing, Industry and Tourism, Northern Affairs and Natural Resources. Technical information will be exchanged with U.S., European and Scandinavian agencies engaged in similar activities. Provincial lottery funds are being allocated to university research groups to support ancillary studies.

Current plans call for a two phase study. The first phase will determine the scope and severity of the problem and will focus on developing schemes for maintaining lake fisheries. The second phase will involve a long-term commitment to mitigative measures while appropriate abatement strategies are developed, refined and implemented.

Present air monitoring networks will be expanded to cover those areas of the province deemed most susceptible to continued atmospheric acidic input. An intensive province-wide lake sampling program will determine the lakes most susceptible to the phenomenon. Lakes with viable economic fisheries will be artificially maintained and their fisheries preserved and enhanced until long-term abatement solutions can be worked out with all levels of government involved.

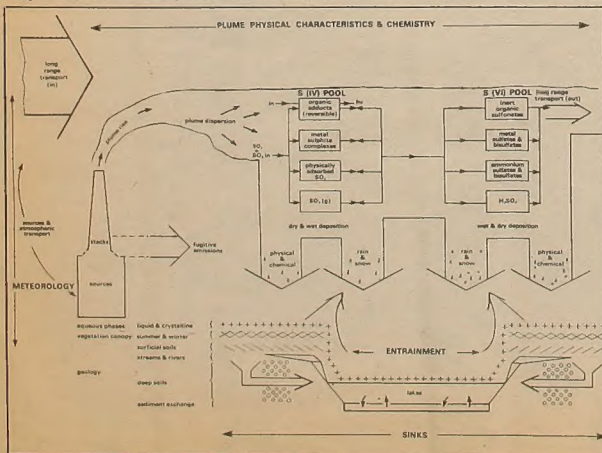


Diagram showing SO₂ movement in the atmosphere.

What we know:

After Dr. Parrott's statement Environment Ontario scientists presented to the committee on resources development detailed reports on the state of knowledge on acidic precipitation. Following are some highlights from the reports:

Lakes sufficiently acidified to cause loss of fish have been observed in Sweden, Norway, New York State, Nova Scotia, Maine, Scotland and in Ontario. Of Sweden's 90,000 lakes 10,000 are acidic now and 50 per cent of the total are feared to become acidic within the next 10 years. In the Adirondacks more than 50 per cent of the lakes at elevations above 600 metres (1800 ft) are now acidic and without fish.

OXIDATION

The rate of atmospheric oxidation of sulphur dioxide varies from less than 1 per cent per hour to around 12 per cent per hour, depending upon the weather. This slow conversion rate explains why SO₂ can influence the acidity of precipitation at locations far removed from the point of emission. The range of influence is about 1500 km (1000 miles).

WEATHER MOVEMENT

The movement of weather systems across North America results in a major influx of polluted air parcels from the United States which contribute significantly to the deposition of acidic substances by both wet precipitation and dry deposition. A large percentage of the air masses associated with precipitation come from the southwest.

DEGREE OF ACIDITY

The pH of precipitation in Southern Ontario usually lies between 3 and 5. The average value is in the vicinity of 4 which represents a significant increase (nearly 40 times) in acidity over that which occurs naturally due to atmospheric CO₂ (5.6). Numerous recorded events in the past year have had a pH equal to or less than 4.0. Snow cores taken on the study lakes and watersheds at the end of the winter had pH's of 4.0 to 4.3. Even at its highest level the acidity measured in precipitation and waterbodies is not detrimental to humans. The human body is accustomed to accept much more acidic solutions, as when drinking fruit juices or flavored soft drinks.

In soil acidification the effects observed are reduced pH, reduced cation exchange capacity, increased mobility of aluminum, manganese and iron atoms and changes in biological activities.

BUFFERING CAPACITY

Acidification of precambrian lakes near Sudbury indicated that 20 per cent of the lakes in the study area have been acidified and that 50 per cent have a calcite saturation index indicating little or no remaining buffering capacity.

If recently-recorded loadings of acidic material to the study lakes in

the Haliburton area continues, then in many of these lakes the alkalinity will be exhausted within 5 to 10 years.

SPRING RUNOFF

Periods of heavy rainfall resulting in very acidic runoff in the Haliburton area have indicated that the buffering capacity of the soil is either depleted or cannot be made available fast enough to neutralize the acidic input. Acidic snow resulted in severe depressions of pH in streams and surface water of lakes during the spring runoff. The maximum increase in hydrogen ion concentration in the 10 streams surveyed to date was up to 15 times the annual average. A spring pH depression is coincident with spring spawning of some species of fish and amphibians.

There were serious pH depressions in a number of the study lakes in the spring of 1978. Lakes that normally have a similar pH of 6.2 to 6.8 (e.g. Harp and Jerry Lakes) had pH's of only 5.4 to 5.9 in the mid-lake areas. The shoreline pH's were 5.0 to 5.3 in Harpe Lake compared to 5.9 in the main body of the lake in the spring and 6.7 in the summer; 4.8 to 5.2 in the littoral zone of Chub Lake compared to 5.3 in the mid-lake in the spring and 6.0 in the summer. pH values below 5.5 will reduce fishery production.

Precipitation in the Haliburton area contains higher concentrations of copper, nickel, zinc, lead and manganese than in the Kenora area which is far removed from industrial sources.

EFFECT OF LIME

Aluminum and manganese levels, means of 49 and 51 µg/l respectively, in 14 lakes were elevated in rivers and lakes due to a leaching from watersheds by acidic precipitation. These concentrations may be toxic to fish in some cases.

In two study lakes close to Sudbury, the pH was artificially adjusted back to normal with lime and calcium carbonate but metal concentrations still remained at levels toxic to fish.

Sediment cores from non-mixed lakes in the Haliburton area (no oxygen at the bottom and therefore no organisms to mix up the sediments) indicate increased lake loading of lead, nickel, copper and cadmium over the past 30 years.

ACIDICITY AND MERCURY

Some observations indicate that low pH conditions in the lake water are associated with mercury accumulation in fish although the mechanism is not well understood at this time.

It has been observed in Ontario, that walleye from lakes of low alkalinity contain higher levels of mercury than the same size of walleye from lakes of higher alkalinity, even though the pH may not be significantly different.

Expanded research:

Ontario is expanding its research into the global environmental problem of acidic precipitation and its effect upon fish. Environment Minister Harry C. Parrott announced.

Two research projects financed by \$228,000 in Provincial Lottery funds are extensions of Ontario's ongoing investigation of acidic precipitation—the acidification of fresh water lakes through deposits of sulphuric and nitric particulates borne by upper air masses and deposited in rain.

A \$186,000 contract has been awarded by Environment Ontario to the University of Toronto for the monitoring of fish in 20 stressed lakes in the Haliburton region. This study is an extension of research conducted by Environment Ontario since 1976 in co-operation with the Ministry of Natural Resources.

Dr. Harold Harvey, professor of biology at Toronto's Ramsey Wright zoological laboratory and one of Canada's leading fish biologists, will head the university research team.

The second project, funded by \$42,000 from the lottery, is now under way at the Canada Centre for Inland Waters in Burlington. There the suspected link between acidic precipitation and the intake of mercury by fish will be studied in special lake simulators.

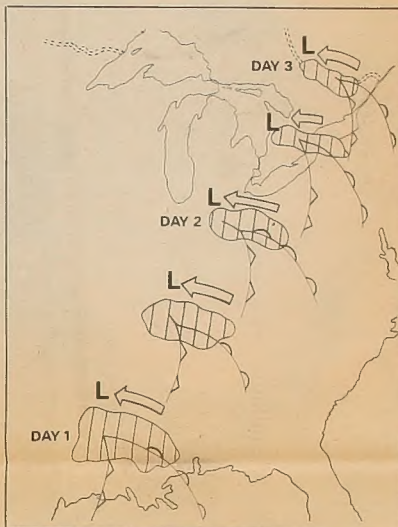
The study will attempt to determine what amounts of mercury are taken up at several levels of the aquatic food chain at varying degrees of acidity. The six-month project will be managed by Dr. Tom Watson of James F. McLaren Ltd. of Toronto and is based upon

work already done by Environment Ontario, the Ontario Ministry of Natural Resources and Environment Canada.

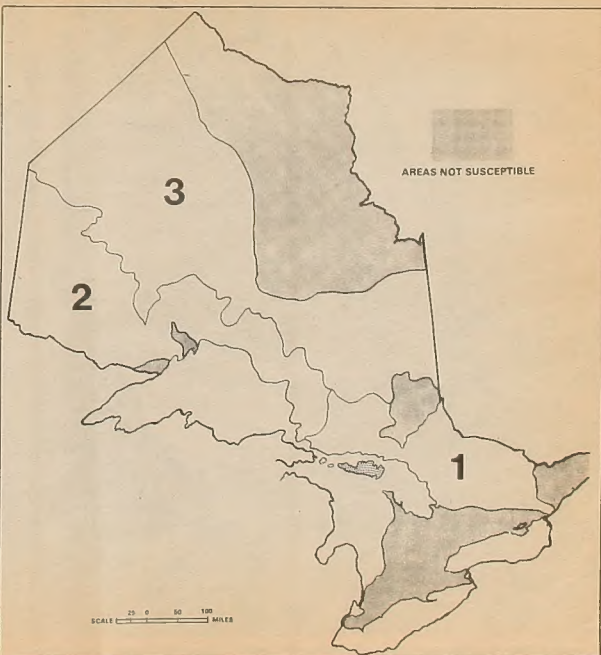
The Ministries of the Environment and of Natural Resources conduct a broadly-based analysis for possible contaminants in fish taken from lakes and rivers in all regions of Ontario. This program has detected mercury in certain

species of fish in some isolated lakes for which no known sources of mercury, such as industry, have been determined.

"We hope that this study will provide the basis for a better understanding of the problem and will assist my Ministry's efforts to develop techniques to improve lakes which have become acidified," said Dr. Parrott.



Development of weather patterns in northeastern North America.



Terrain susceptibility to acid precipitation.

Three ministries co-operate in

Shortly after the ice leaves our lakes and rivers, Ontario Ministry of Natural Resources staff sets out to sample fish populations for the Fish Contaminants Monitoring Program undertaken as a co-ordinated effort by the Ontario Ministries of Natural Resources, Environment and Labour.

In most cases the waterbodies to be sampled are chosen by Ministry of Natural Resources and Ministry of the Environment experts for one or more of the following reasons:

- they are a popular angling area
- they are fished commercially
- the fish is a major source of food for local inhabitants
- known or potential sources of pollution are located nearby
- the lake has been opened for recreational development

Some areas are also sampled for scientific studies of the long-term behaviour of contaminants in fish.

The MNR crews use a variety of gear, such as trap nets, to catch a representative sample of the local fish population. Fish not specifically needed for sampling are released, but 15 to 30 specimens each of the top predatory species, for example, walleye, pike, lake trout and smallmouth bass, as well as other locally important species, are kept for testing.

In some cases fish are selected from the catch of local commercial fishermen.

The samples selected cover as closely as possible the full range of sizes of the species found in the lake or river.

For each fish collected the species, length, weight, sex and location are recorded. Ministry of Natural Resources staff remove a boneless, skinless fillet of dorsal muscle from the fish and freeze it for transport to Environment Ontario laboratory for chemical analysis.

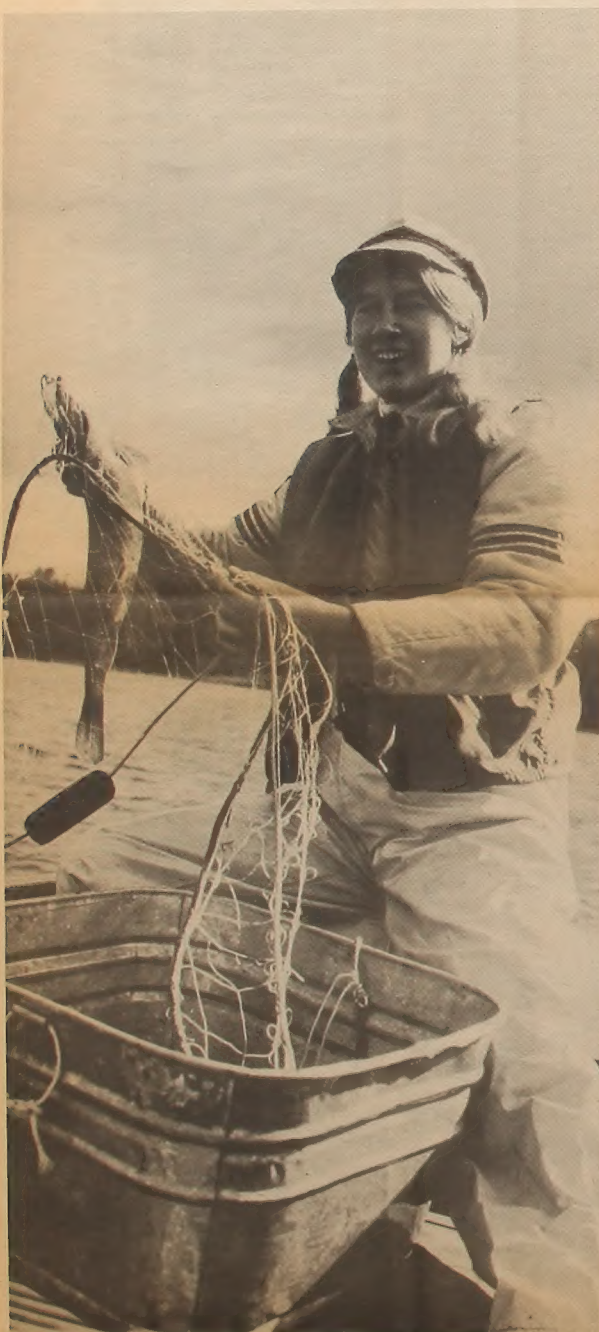
Some species, for example smelt, are not filleted but preserved and later processed whole.

At Environment Ontario's laboratory, the testing of fish samples for various contaminants is a year-around job. The work is under supervision of Manager James Bishop. Head technician for the project, Darryl Russell, is assisted by three technicians, Margarita Wainwright, Robert Howard and Matthew Wood. Statistical evaluation and scientific work is done by scientist Bernard Neary.

During the past year Ministry experts have developed a streamlined system that allows the testing of up to 500 samples per week in two different processes: one process to determine the contamination of fish by mercury, the other the contamination by chlorinated compounds, such as PCBs, and pesticides including DDT and Mirex.

Filletts are generally used for testing instead of the whole fish, to test the parts of the fish generally eaten.

In the testing for mercury, the sample fillet is first ground to a paste, a small portion of which is dissolved in acid. The acid solution is automatically analyzed by a



Kaarina Bubalo, biologist with a Ministry of Natural Resources lake survey team, removes a lake trout from the fishing net. (Photo: MNR)



After landing, fish are filleted and tagged.

Ontario's fish testing program

flameless atomic absorption analyzer. The result of the analysis is shown on a strip chart and also fed to a computer together with all pertinent data.

In the testing for chlorinated compounds, the ground fish paste is dissolved in an organic solvent, which is analyzed by gas chromatograph. This instrument can detect and determine the quantity of 18 different chlorinated compounds in a sample and deliver its findings to the computer.

In the computer the data are collected, indexed, classified and processed to produce a print-out which is then used to produce the Guide to Eating Ontario Sport Fish, published yearly, and Environment Health Bulletins on fish contaminants, published as the information becomes available.

The medical implications of contaminants are evaluated separately by medical specialists with the Ontario Ministry of Labour.

625 waterbodies involved

In 93 per cent of the 625 waterbodies tested in Ontario some or all species of fish are suitable for unrestricted consumption. For fish from 6.4 per cent of the lakes restricted consumption is recommended, and only two lakes (0.32 per cent) contain fish that should not be eaten. This is the latest summation of the Ontario Government fish testing program conducted since the late sixties under the auspices of the Ministries of Natural Resources, Labour and the Environment.

The results of tests on over 43,000 fish are published in three bilingual booklets.

"It is a steadily improving story over initial tests published in 1977, when results were released for 167 lakes and rivers, many of which were near known sources of industrial pollution and population centres," Dr. Parrott said.

Since then the scope of the testing program has been expanded to cover most popular angling areas. Nowhere has the testing revealed the presence of sufficient quantities of contaminants to render the water unfit for swimming or as a source of treated drinking water, Dr. Parrott said.

The testing of fish for human consumption will be continued, and Environment Ontario and the Ministry of Natural Resources plan to investigate another 200 lakes during this year's season.

Copies of the free booklets, titled "Guide to Eating Ontario Sport Fish" for the Great Lakes, Southern and Northern Ontario, are available from any office of the Ministries of the Environment, of Natural Resources or Northern Affairs, and from L.C.B.O. and Brewer's Retail outlets in vacation areas.



John Steele of Environment Ontario checks out one of the signs posted at waterbodies in which fish have been tested. (Photo: Tessa Buchan)



(Photo: MNR)



At the Environment Ontario laboratory, Deba Ghose, laboratory technician, separates interfering substances from fish muscle extract before analysis for PCB contamination. (Photo: Tessa Buchan)

Disposal of liquid waste no. 1 priority — Scott

"Concern with the environment has always been one of the top items on my personal priority list," Graham W. S. Scott told Legacy in an interview shortly after settling down in his new office on the 14th floor of Environment Ontario's head office building.

Ontario Premier William Davis appointed Graham W. Scott to the post of Deputy Minister of the Environment in February.

Kenneth H. Sharpe, Deputy Minister of the Environment since April, 1977, became Chairman of the Environmental Assessment Board, succeeding David Caverley who retired on June 1st. Mr. Caverley will continue as a member of the Board.

Salmon fisherman

"One of my passions is fishing — Atlantic salmon fishing, in my native Nova Scotia. If you have seen the salmon runs in some of Eastern Canada's beautiful streams, you can certainly appreciate the beauty of unspoiled nature and the value of a clean environment."

When his family moved to Ontario, Mr. Scott entered the University of Western Ontario and attained both his Bachelor of Arts and LLB degrees, graduating in 1966. During this time he was in the Royal Canadian Navy Reserve, retiring as a lieutenant.

After practicing law for two

years, Mr. Scott became executive assistant to the Leader of the Opposition in the House of Commons, Robert Stanfield. "I have a great admiration for Mr. Stanfield," Mr. Scott told Legacy, "and I stayed longer in Ottawa than I expected, mainly because I enjoyed working with him."

Following Mr. Stanfield's resignation in 1975, Mr. Scott, because of his interest in public policy, elected to continue his career in public service.

He joined the Ontario Government as executive co-ordinator, planning and operations, with the Ministry of the Attorney-General and later served as assistant deputy attorney general, Courts Administration, a position he held until February, 1978.

He was then appointed Associate Secretary of the Cabinet and Secretary of the Policy and Priorities Board. In this capacity, he developed a broad view of ministerial operations and became acutely aware of environmental matters.

... in the Sixties ...

"I have always found environmental issues of great interest and concern," Mr. Scott said. "I was very involved when people started looking in the Sixties at the tremendous damage we are carelessly doing to the world around us. During my years in Ottawa I developed a special interest in environmental

issues." Now as Deputy Minister for the Environment, Mr. Scott feels right in the middle of things.

"Quite aside from the major environmental challenges we face, I feel that the Ministry's first problem is to effectively cope with the Ontario Government's policy of restraint. After several years of this policy, the challenge is more subtle and we must now adapt our management to these constraints and, at the same time, ensure that our resources are directed as effectively as possible toward the solution of our key environmental problems."

environmental priorities

"Among these, immediate priority must be given to the disposal of solid and liquid industrial waste, to the challenge of dealing with acidic precipitation, and to the very complex question of water pollution arising from urban and rural land uses."

"I am sure that in co-operation with the extremely competent technical staff of the Ministry we will come up with valid solutions, and with strategies designed to cure inherited abuses of the environment and to keep Ontario clean."

"But there is also another major area we will have to tackle and that is to raise better understanding in the public mind as to what our problems are, and how the public itself can help us to solve them. If



Graham W. S. Scott

the public does not gain this understanding, we in the government will not get the resources and participation we need to do the job."

Coping with restraints, dealing with environmental problems of international scope and raising the understanding of the public may be more than a full-time job — but Graham Scott has found a way to deal with that, too. Ministry employees working with the Deputy have found that their boss has a good part of his daily work completed by the time they arrive at their desks in the morning.

"After we moved to Toronto my wife, Gail, became host of Canada AM on CTV. Her daily work starts

at 5 a.m. — and I decided to follow suit with a matching schedule," he explains. "That does not mean that I get up that early — but by 5:45 I am out in the park close to our house with my sheep dog, and we go for a three-mile jaunt."

"I get to the office by about 7 a.m. to find the place beautifully quiet, and somehow fresh and inviting. I get a tremendous amount of work done before the telephone starts ringing, and the typewriters start going at full speed. It keeps me ahead of things..." Which is exactly the type of executive needed by a Ministry which carries responsibility for our environment.

How bad air affects children

Is it ambient air pollution in the city or home smoking and cooking that's causing junior's bad cough?

Scientists at McMaster University were to answer this question while carrying out a three-year study on urban air pollution in Hamilton. In this first major epidemiological study of air pollution in Canada, investigators will weigh the effects of parental smoking and cooking fumes in poorly-ventilated homes, in addition to urban air pollution in general, on the respiratory health of children.

Ontario Environment Minister Harry C. Parrott announced that McMaster University will receive \$376,000 from the Provincial Lottery Trust Fund for the study on the respiratory health of Hamilton school children. The Federal Ministry of Health and Welfare is matching the Ontario grant.

Originally planned as a study of the effects of ambient air pollution,

the study was broadened to measure environmental factors both in and outside the home after a pilot sample was done last year on about 300 children. This indicated that parental smoking and home cook-

ing without proper ventilation could have significant effects on a child's respiratory health.

The study will involve 3,800 children between the ages of seven to ten.

"Divide and Conquer" recycles 620 tons

About 620 tons of separated household waste were collected for recycling in the "Divide and Conquer" experimental source separation program conducted since April, 1978, in Aurora, Halton Hills (Georgetown), Etobicoke and in a Toronto City neighbourhood. The total collected of 430 tons of newspaper, 136.5 tons of glass and 56.2 tons of cans.

The systems of collection varied in each community, but in all areas

the public was requested to separate newspaper, glass and cans from household garbage. In Aurora the material was delivered by the public to three conveniently located depots. The other communities used separate curbside collection systems. In all cases the systems were operated by municipal staff, and data on the collection were recorded and processed.

The record shows that citizen participation was highest with 24.1

I would like you to convey my appreciation to all staff and those present at the reception.

The gift is one that I will treasure as a reminder of the warmest regard held by me for the staff of the Ministry.

I will continue to follow the accomplishments of the Ministry and careers of the staff with great interest. I wish everyone success in the future.

It is my intention to keep up my acquaintance with the people I worked with for so long and look forward to seeing you all from time to time.

Again, many thanks. It was a memorable evening for me.

Sincerely yours,

Ken Sharpe

Environment Assessment Board

per cent in the 14 week limited test program conducted in Etobicoke. The highest recovery rate was registered in the same municipality, with 2.40 pounds per person per week. The Toronto neighborhood recovered 1.22 and Georgetown 1.17 pounds per week per participating household over 36 and 32 weeks respectively. In Aurora contribution to the depots averaged

.61 pounds per inhabitant per week over 32 weeks.

The collected material was marketed by the municipalities with assistance from Environment Ontario. Preliminary assessments indicate that the cost of collecting source-separated material are higher than conventional waste collection and disposal.



Pat Moore, Bruce Townsend and Dave Hollinger (left to right) join forces in taking a water sample from Clay Lake.

"At fifty below any mistake can kill"

By John Steele

Pat Moore dipped her dissolved oxygen meter into the water of Wabigoon Lake and entered a few figures on her pad: water temperature: 0.7°C, air temperature: -45°C.

Forty miles north of her Dave Hollinger and Bruce Townsend struggled with two frozen snowmobiles. They had to thaw the snow plugs with a blow torch before they got the machine started. When the motor was warm, Dave pushed the choke in slowly — and the plastic dash shattered.

Pat Moore and Dave Hollinger of Environment Ontario's Thunder Bay regional office and Bruce Townsend of Environment Canada's Winnipeg office, sample the waters of Clay Lake and of the Wabigoon River near Dryden for two or three days every week. The sampling program is part of the continuing federal/provincial study on the pollution-plagued English-Wabigoon River system. Pat travels by truck to sample water in the Dryden area while Bruce and Dave use snowmobiles to reach various sampling stations on Clay Lake.

English-Wabigoon River study . . .

On Wabigoon Lake Pat, a 25 years old technician, finished her sampling, packed her gear on a toboggan and walked to the truck she had left at the lake's edge.

It is common practice in extreme cold weather to leave engines running. But the engine of Pat's truck had stopped. After carefully stowing her gear she tried to start it. The engine turned over slowly — but caught eventually.

Pat played carefully with the gas pedal to keep it running. When the engine sound changed from a wheezing cough to a healthy roar she turned the vehicle around and headed — on tires squared by the

cold — for the Dryden Bakery for a coffee and a chance to thaw out before continuing her sampling.

On Clay Lake Bruce's beard had turned to ice while he travelled across the frozen landscape to his first sampling spot. His right ear was still painful as a result of frost bite suffered the day before. The ear had popped loose from under his tuque and had frozen before he could stop the snowmobile and do something about it.

Bruce's beard turned to ice . . .

The week before a small hole in his boot almost caused a serious problem. Clay Lake, like most northern Ontario lakes in winter, has very slushy areas caused by the insulating properties of the snow. As he drove over one of these areas, water entered into Bruce's boot just seconds before the snowmobile iced over and stalled.

Being a cold water expert and under-ice diver, Bruce knew that even such a very small amount of moisture could, in the cold weather, lead to tissue freezing if it was not immediately attended to. But he was lucky. Dave happened to just drive by, and he could take his colleague back to the warmth of a fishing lodge they use for the storage of their vehicles.

In Dryden, over a hot cup of coffee, Pat talked about her out-of-doors work for the Ministry.

"Except on very cold days like today, I enjoy working outdoors," she said. "I guess I am one of the few women who actually take samples and do tests and I consider myself lucky because I love northwestern Ontario. . . ."

"When working outside in weather like this I must use common sense", Pat explained. "I don't have the strength of a man, and must be aware of my limitations. Lifting a stuck snowmobile

out of a snowdrift, for example, is something I will never be able to do. This is why I don't sample by snowmobile alone. At fifty or so below any kind of mistake can be fatal."

After finishing the warming coffee Pat continued her sampling at the Reed mill in Dryden and on the Wabigoon River below the mill. Later that afternoon she would take her samples to a refurbished, turn-of-the-century school house in Quibel, a few miles northeast of Vermilion Bay. There she would meet with her supervisor, Dave, and with Bruce.

At the school, which has been renovated by the federal government, Hollinger and Townsend are relaxing in front of a home-made stove. Their sampling for the day is done, but they will continue at 6:00 the next morning.

The biggest problem: to stay warm . . .

"Your biggest problem at fifty below is staying warm," Dave said. "Equipment always is a problem in this weather. The snowmobiles freeze up and won't start. Even unscrewing a bottle cap becomes a monumental task in such conditions."

"Every job, no matter how small, has to be planned and organized. Generally it takes twice as long to perform water sampling now than during spring or summer."

"It isn't much fun working outside when the weather gets this cold, but we are determined to do a good job. The North is beautiful both in winter and summer. After you have worked, played and lived in the North for a while, you learn to admire, and to respect it," Dave said.



As Pat removes the auger from the hole in the ice, the splash freezes instantly to a filigree of ice. (Photos: Ron Johnson)

That evening after dinner I went for a short walk. After a little while I became aware of the stillness. The only sound around was the sound of my own footsteps — the snow underfoot crunched at every step. My hair and my moustache were covered with ice particles. It

was cold and very dark. I stretched my arm out and saw my hand disappear into the icy blackness of the winter night.

I shuddered in astonishment rather than cold and turned around toward the warm lights of the old school house.

It's all one world...



Junkyard in orbit

A belt of satellite fragments resulting from collisions in space will form around Earth within about 50 years, predict experts from the NASA Johnson Space Center. There are already more man-made bodies heavier than one gram circling the Earth than there are natural meteoroids.

This debris includes fragments from over thirty satellites that have been exploded or have disintegrated in orbit. The first major collision, NASA scientists predict, can be expected within the next ten to twenty years, and things will get progressively worse from then on.

In due time communication

satellites and space laboratories may have to avoid the 500 to 1200 km height range to avoid the dangers of collision — and to start their own junkyard.

There seems to be little that can be done to prevent the formation of an artificial asteroid belt consisting of uncontrollable space junk. As long as they remain under control, satellites could be burned up in the Earth atmosphere when their useful life is over, and better designs may reduce the accidental break-up of the costly machinery. But eventually there will be a need for a space garbage collection corps and official space garbage collection and recycling operations.

Archeologists will miss unrecycled waste

"All our ideas about human behaviour in the past are founded on rubbish," writes R. A. Gould of the University of New Mexico in the introduction to his book "Explorations in Archeology."

He is, of course, right, as archeology and anthropology are founded on the excavation of ancestral middens or rubbish-heaps.

Which leaves one wondering, whether mankind's growing interest in the recycling of waste may

possibly give archeologists 5000 years hence the impression that human civilisation gradually declined and — with full recycling — eventually stopped in the twentieth century. Seen from our point of view, however, it seems preferable to deprive some future scientists of research material than to bury humanity in garbage — a future we are moving toward, unless resource recycling manages to halt the trend.

Population growth slows down

Birth control programs in some of the worlds most densely populated countries are forcing birth rates down much faster than anticipated, sociologists at the University of Chicago found. "If present trends continue, the world population crisis appears resolvable," report Amy Ong Tsui and Donald Bogue of the university's Population Reference Bureau.

Ten years ago the United Nations forecast a world population of 6.3 billion for the year 2000, and the World Bank a population of 6 billion. The worldwide drop of the rate of childbearing from 4.6 to 4.1 children per woman of childbearing age between 1968 and 1975 now promises a total world population of only 5.8 billion by the year 2000.

FOAM FOR THE SOIL

Foamed polystyrene products, as coffee cups, packaging material and insulation can be ground, chopped or flaked into tiny chips usable as soil conditioner. The Plant Protection centre at Oregon State University reports that such recycled material can aid plant growth, help prevent plant diseases, increase soil drainage and aeration and improve the thermal balance of soil.

The 20 per cent reduction in pesticide use, demanded by critics, is not likely to be possible, claim department officials.

FERTILIZERS THREATEN OZONE LAYER

The Earth's ozone layer could be damaged by the increasing use of nitrogen fertilizers, reports the US National Research Council. But because the use of these fertilizers to feed the world's hungry is so important and the threat of ozone depletion is only a long term possibility, no drastic moves to correct the situation should be made, concludes the Council's report.

TOO MUCH PESTICIDE

California is using 250 million pounds of pesticides to produce annually \$9 billion worth of agricultural products, some of which are exported to Canada. The states heavy use of pesticides is now under attack by environmentally minded critics.

For 1979 California's food and agriculture department has promised new regulations. The new rules would, however, generally only shift the pesticide use to less toxic chemicals.

NOSES FOR HIRE

Eighty citizens with good noses have been appointed sniffers in the West German city of Mannheim, the home of an expanding chemical industry. Their job will be to sniff the breeze three times a day and report on any bad smells. The city has found that the human nose is far more sensitive than any man made odor detection device.

Costs not important...

Although protection of the environment costs money, 53 per cent of over 1000 people interviewed by the Bureau of Social Science Research, Washington, DC, agreed with the statement: "Protecting the environment is so im-

portant that requirements and standards cannot be too high, and continuing improvements must be made regardless of costs." Only 10 per cent accepted the statement that "Pollution control requirements and standards have gone too

far and already cost more than they are worth."

The interviews were conducted in the US about one week after Californians voted for Proposition 13. Respondents to the poll were chosen from all social strata.

ASBESTOS HIGH IN US SCHOOLS

Millions of children in US schools are exposed to asbestos levels exceeding the 10 fibre per cubic centimetre limit established by the US government for workplaces, reports the Environmental Defense Fund in Washington, DC. The carcinogen has been used in the construction of walls and ceilings of schools from about 1940 to 1973.

Of the 6000 schools investigated by the US Environmental Protection Agency, almost 1000 contained asbestos materials. If the percentage holds true nationwide, about 13,500 schools with almost seven million students contain asbestos. The situation is serious enough to have the US government consider the gigantic task of hav-

ing asbestos materials removed or covered up in thousands of schools.

REGINA MONITORS ITS AIR

The air in Regina, Sask., is now monitored around the clock by air quality monitors, two operating in the heavy traffic area downtown and the third one in a residential and park area, the province's Department of the Environment announced recently. The monitors measure particulates, sulphur dioxide, carbon monoxide, nitrous oxide and ozone concentrations.

The equipment is operated and maintained by Saskatchewan Environment's Air Pollution Control Branch

FINES SHOULD FINANCE NOISE CONTROL

Fines levied from noisemakers should be used to finance research in noise abatement, demands the British Organisation for Economic Cooperation and Development.

A beginning in this direction has been made in a Noise Nuisance Bill, introduced recently in Holland. The bill proposes that offenders be fined according to the noise their vehicles produce in normal use, and some of the cash collected be diverted into research and development of quiet designs.

France, Japan and Britain have introduced or are planning to introduce fines for noisy aircraft with provisions to allow the use of the collected amounts for the sound insulation of homes near airports.



Ministry
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Environment
Ontario

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